

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of : Attorney Docket No. 2004_0215A
Youji NOTOYA et al. : **Confirmation No. 5638**
Serial No. 10/777,063 : Group Art Unit 2621
Filed February 13, 2004 : Examiner C. E. Anyikire
MOVING PICTURE CODING METHOD : **Mail Stop: APPEAL BRIEFS-PATENTS**
AND MOVING PICTURE DECODING
METHOD

APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The following is Appellants' brief, submitted under the provisions of 37 CFR 41.37, the time period for submission having been reset to one-month from the mailing of the Notice of Panel Decision from Pre-Appeal Brief Review dated October 27, 2011. Pursuant to the provisions of 37 CFR 41.20, this Brief is submitted with a fee of \$620.

REAL PARTY IN INTEREST

The real party in interest is PANASONIC CORPORATION of Osaka, Japan, the assignee of record.

RELATED APPEALS AND INTERFERENCES

None.

STATUS OF THE CLAIMS

Claims 8, 11, 13, 15, and 18-22 stand finally rejected.

Claims 1-7, 9, 10, 12, 14, 16, and 17 have been cancelled.

Appellants appeal the rejection of claims 8, 11, 13, 15, and 18-22.

STATUS OF THE AMENDMENTS

No Amendment has been filed subsequent to the issuance of the Final Office Action dated June 8, 2011 in which the rejection of claims 8, 11, 13, 15, and 18-22 was made final.

SUMMARY OF THE CLAIMS SUBJECT MATTER

A description of the subject matter of the rejected independent claims is presented below with reference to the written description and drawings of this application. It is noted that the following descriptions are made with reference to the specification as originally filed.

The subject matter of claim 8 is drawn to a moving picture decoding method for decoding, on a picture-by-picture basis, a coded stream (*See FIG. 18, FIG. 20, and page 25, lines 10-25*), wherein the coded stream includes (i) coded picture data for each picture included in the coded stream (*See FIGs. 2 and 18*), (ii) display order information for each picture included in the coded stream, where the display order information for each picture is a picture order count (POC) and has a value indicating the display order of the respective pictures (*See FIGs. 2 and 18 and page 6, lines 15-19*), and (iii) a flag inserted into the coded stream so as to indicate a position among the coded picture data where the values of the display order information of the pictures in the coded stream are sequential or non-sequential (*See FIG. 18, page 23, lines 5-10, and page 26, line 24 to page 27, line 7*), where being sequential is being incremental by one and being non-sequential is a state other than being incremental by one, and wherein the flag is stored in the

coded stream or in random access point information in a file system to convey the coded stream (*See FIG. 18, page 23, lines 5-10, and page 26, line 24 to page 27, line 7*), the moving picture decoding method comprising: an information extraction step of extracting the flag indicating a position among the coded picture data where the values of the display order information are non-sequential (S31 in *FIG. 20, page 24, lines 16-21, and page 25, line 14-16*); and a management step of managing a storage memory area for storing a decoded picture based on the flag (*See FIG. 21, page 24, lines 21-29, and page 25, line 26 to page 26, line 9*), wherein, when the flag is extracted in the information extraction step, a clip including unused pictures is searched, during the management step, for the decoded picture stored in the storage memory area (*S41 in FIG. 21 and page 25, line 30 to page 26, line 9*) and a picture whose position is earliest in a display order among the unused pictures is determined as a picture to be removed (*S43B in FIG. 21 and page 25, line 30 to page 26, line 9*).

The subject matter of claim 13 is drawn to a moving picture decoding apparatus for decoding, on a picture-by-picture basis, a coded stream (*See FIGs. 18 and 19 and page 24, lines 9-29*), wherein the coded stream includes (i) coded picture data for each picture included in the coded stream (*See FIGs. 2 and 18*), (ii) display order information for each picture included in the coded stream, where the display order information for each picture is a picture order count (POC) and has a value indicating the display order of the respective pictures (*See FIGs. 2 and 18 and page 6, lines 15-19*), and (iii) a flag inserted into the coded stream so as to indicate a position among the coded picture data where the values of the display order information of the pictures in the coded stream are sequential or non-sequential (*See FIG. 18, page 23, lines 5-10, and page 26, line 24 to page 27, line 7*), where being sequential is being incremental by one and being non-sequential is a state other than being incremental by one, and wherein the flag is stored in the coded stream or in random access point information in a file system to convey the coded stream (*See FIG. 18, page 23, lines 5-10, and page 26, line 24 to page 27, line 7*), the moving picture decoding apparatus comprising: an information extraction unit operable to extract the flag indicating a position among the coded picture data where the values of the display order information of the pictures are non-sequential (item 203 in *FIG. 19, page 24, lines 16-21, and page 25, line 14-16*); and a management unit operable to manage a storage memory area for storing a decoded picture based on the flag (item 205 in *FIG. 19, page 24, lines 21-29, and page 25, line 26 to page 26, line 9*), wherein, when the flag is extracted by the information extraction

unit, the management unit searches a clip including unused pictures for the decoded picture stored in the storage memory area (S41 in FIG. 21 and page 25, line 30 to page 26, line 9), and determines, as a picture to be removed, a picture whose position is earliest in a display order among the unused pictures (S43B in FIG. 21 and page 25, line 30 to page 26, line 9).

The subject matter of claim 15 is drawn to a non-transitory computer readable recording medium encoded with a computer program for decoding, on a picture-by-picture basis, a coded stream (*See FIGs. 18 and 20, page 25, lines 10-25, and page 34, lines 21-26*), wherein the coded stream includes (i) coded picture data for each picture included in the coded stream (*See FIGs. 2 and 18*), (ii) display order information for each picture included in the coded stream, where the display order information for each picture is a picture order count (POC) and has a value indicating the display order of the respective pictures (*See FIGs. 2 and 18 and page 6, lines 15-19*), and (iii) a flag inserted into the coded stream so as to indicate a position among the coded picture data where the values of the display order information of the pictures in the coded stream are sequential or non-sequential (*See FIG. 18, page 23, lines 5-10, and page 26, line 24 to page 27, line 7*), where being sequential is being incremental by one and being non-sequential is a state other than being incremental by one, wherein the flag is stored in the coded stream or in random access point information in a file system to convey the coded stream (*See FIG. 18, page 23, lines 5-10, and page 26, line 24 to page 27, line 7*), and wherein, when executed, the computer program causes a computer to perform a method comprising: an information extraction step of extracting the flag indicating a position among the coded picture data where the values of the display order information of the pictures are non-sequential (S31 in FIG. 20, page 24, lines 16-21, and page 25, line 14-16); and a management step of managing a storage memory area for storing a decoded picture based on the flag (*See FIG. 21, page 24, lines 21-29, and page 25, line 26 to page 26, line 9*), wherein, when the flag is extracted in the information extraction step, a clip including unused pictures is searched, during the management step, for the decoded picture stored in the storage memory area (S41 in FIG. 21 and page 25, line 30 to page 26, line 9), and a picture whose position is earliest in a display order among the unused pictures is determined as a picture to be removed (S43B in FIG. 21 and page 25, line 30 to page 26, line 9).

The subject matter of claim 18 is drawn to a moving picture coding method for coding an inputted coded moving picture signal on a picture-by-picture basis and generating a coded stream (*See FIG. 18 and page 22, line 10 to page 23, line 4*), wherein the inputted coded moving picture

signal includes (i) coded picture data for each picture (*See FIGs. 2 and 18*), and (ii) display order information for each picture, where the display order information for each picture is a picture order count (POC) and has a value indicating the display order of the respective pictures (*See FIGs. 2 and 18 and page 6, line 15-19*), the moving picture coding method comprising: a detecting step of detecting whether the values of the display order information for the pictures to be included in the generated coded stream are sequential or non-sequential (page 22, lines 23-26), where being sequential is being incremental by one and being non-sequential is a state other than being incremental by one; a flag information generation step of generating a flag indicating that the values of the display order information are non-sequential, when said detecting step detects that the values of the display order information for the pictures to be included in the generated coded stream are non-sequential (item 112 in FIG. 17 and page 22, lines 22-26); and a coded stream generating step of (1) generating a coded stream including: (i) the coded picture data for each picture to be included in the generated coded stream; and (ii) the flag inserted into the coded stream so as to indicate a position among the coded picture data where the display order of the pictures is non-sequential (item 113 in FIG. 17 and page 22, line 27 to page 23, line 1), or (2) generating a coded stream including: (i) a predetermined coding unit (“GOP1” in FIG. 28) and a further coding unit (“GOP2” in FIG. 28) such that the predetermined coding unit includes a plurality of picture data of respective pictures to be included in the generated coded stream, including a first intra picture, and such that the further coding unit is located after the predetermined coding unit and includes picture data of a picture whose display order is later than a display order of the first intra picture among the pictures included in the predetermined coding unit (*See FIG. 29 and page 32, line 11 to page 33, line 17*); and (ii) the flag inserted into the coded stream so as to indicate a position among the coded picture data where the display order of the pictures is non-sequential, wherein, in the coded stream generating step, the flag is inserted between two pictures in the generated coded stream, said two pictures being non-sequential in display order (item 112 in FIG. 17, page 22, lines 22-26, and page 34, lines 16-18).

The subject matter of claim 20 is drawn to a moving picture coding apparatus for coding an inputted coded moving picture signal on a picture-by-picture basis and generating a coded stream (*See FIGs. 17 and 18 and page 22, line 10 to page 23, line 1*), wherein the inputted coded moving picture signal includes (i) coded picture data for each picture (*See FIGs. 2 and 18*), and (ii) display order information for each picture, where the display order information for each

picture is a picture order count (POC) and has a value indicating the display order of the respective pictures (*See FIGs. 2 and 18 and page 6, lines 15-19*), the moving picture coding apparatus comprising: a detecting unit operable to detect whether the values of the display order information for the pictures to be included in the generated coded stream are sequential or non-sequential (page 22, lines 23-26), where being sequential is being incremental by one and being non-sequential is a state other than being incremental by one; a flag information generation unit operable to generate a flag indicating that the values of the display order information are non-sequential when said detecting unit detects that the values of the display order information for the pictures to be included in the generated coded stream are non-sequential (item 112 in FIG. 17 and page 22, lines 22-26); and a coded stream generating unit operable to (1) generate a coded stream including: (i) the coded picture data for each picture to be included in the generated coded stream; and (ii) the flag inserted into the coded stream so as to indicate a position among the coded picture data where the display order of the pictures is non-sequential (item 113 in FIG. 17 and page 22, line 27 to page 23, line 1), or (2) generating a coded stream including: (i) a predetermined coding unit (“GOP1” in FIG. 28) and a further coding unit (“GOP2” in FIG. 28) such that the predetermined coding unit includes a plurality of picture data of respective pictures to be included in the generated coded stream, including a first intra picture, and such that the further coding unit is located after the predetermined coding unit and includes picture data of a picture whose display order is later than a display order of the first intra picture among the pictures included in the predetermined coding unit (*See FIG. 29 and page 32, line 11 to page 33, line 17*); and (ii) the flag inserted into the coded stream so as to indicate a position among the coded picture data where the display order of the pictures is non-sequential, wherein, in the coded stream generating unit, the flag is inserted between two pictures in the generated coded stream, said two pictures being non-sequential in display order (item 112 in FIG. 17, page 22, lines 22-26, and page 34, lines 16-18).

The subject matter of claim 21 is drawn to a non-transitory computer readable recording medium encoded with a computer program for coding an inputted original coded moving picture signal on a picture-by-picture basis and generating a coded stream (*See FIG. 18, page 22, line 10 to page 23, line 4, and page 34, lines 21-26*), wherein the inputted original coded moving picture signal includes (i) coded picture data for each picture (*See FIGs. 2 and 18*), and (ii) display order information for each picture, where the display order information for each picture is a picture

order count (POC) and has a value indicating the display order of the respective pictures (*See* FIGs. 2 and 18, and page 6, lines 15-19), and wherein, when executed, the computer program causes a computer to perform a method comprising: a detecting step of detecting whether the values of the display order information for the pictures to be included in the generated coded stream are sequential or non-sequential (page 22, lines 23-26), where being sequential is being incremental by one and being non-sequential is a state other than being incremental by one; a flag information generation step of generating a flag indicating that the values of the display order information are non-sequential when said detecting step detects that the values of the display order information for the pictures to be included in the generated coded stream are non-sequential (item 112 in FIG. 17 and page 22, lines 22-26); and a coded stream generating step of (1) generating a coded stream including: (i) the coded picture data for each picture to be included in the generated coded stream; and (ii) the flag inserted into the coded stream so as to indicate a position among the coded picture data where the display order of the pictures is non-sequential (item 113 in FIG. 17 and page 22, line 27 to page 23, line 1), or (2) generating a coded stream including: (i) a predetermined coding unit (“GOP1” in FIG. 28) and a further coding unit (“GOP2” in FIG. 28) such that the predetermined coding unit includes a plurality of picture data of respective pictures to be included in the generated coded stream, including a first intra picture, and such that the further coding unit is located after the predetermined coding unit and includes picture data of a picture whose display order is later than a display order of the first intra picture among the pictures included in the predetermined coding unit (*See* FIG. 29 and page 32, line 11 to page 33, line 17); and (ii) the flag inserted into the coded stream so as to indicate a position among the coded picture data where the display order of the pictures is non-sequential, wherein, in the coded stream generating step, the flag is inserted between two pictures in the generated coded stream, said two pictures being non-sequential in display order (item 112 in FIG. 17, page 22, lines 22-26, and page 34, lines 16-18).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 8, 13, and 15 were rejected under 35 U.S.C. 102(e) as being anticipated by Hannuksela (US 2003/0138043).

Claim 11 was rejected under 35 U.S.C. 103(a) as being unpatentable over Hannuksela in view of Teo et al. (US 5,621,464, hereafter “Teo”).

Claims 18-22 were rejected under 35 U.S.C. 103(a) as being unpatentable over Okada et al. (US 6,148,140, hereafter “Okada”) in view of Hannuksela.

ARGUMENT

I. Rejection of claims 8, 13, and 15 under 35 U.S.C. 102(e) as being anticipated by Hannuksela.

Claim 8 recites (A) a moving picture decoding method for decoding, on a picture-by-picture basis, a coded stream, wherein the coded stream includes ... (iii) a flag inserted into the coded stream so as to indicate a position among the coded picture data where the values of the display order information of the pictures in the coded stream are sequential or non-sequential, where being sequential is being incremental by one and being non-sequential is a state other than being incremental by one, and (B) an information extraction step of extracting the flag indicating a position among the coded picture data where the values of the display order information are non-sequential. Appellants respectfully submit that the above-noted features of claim 8 are not disclosed, suggested, or otherwise rendered obvious by Hannuksela based on the following.

On page 3 of the Office Action dated June 8, 2011, the Examiner appears to rely on paragraph [0056] of Hannuksela as teaching the “flag” and the information extraction step of claim 8. Appellants respectfully disagree that the cited portion of Hannuksela teaches these features of claim 8.

In this regard, paragraph [0056] of Hannuksela teaches that when a user wishes to browse a video sequence at a random point within the video sequence, (i) an initiation image in an independently decodable Group of Pictures (“GOP”) is identified at the random point within the video sequence, and (ii) a number assigned to the initiation image is set to zero so that a decoder may identify the initiation image as the first image frame of a sub-sequence to be processed. Hannuksela teaches that a separate flag may be added to the header field of the initiation image

to identify the initiation image as the first image frame such that the decoder may interpret the image numbers correctly and may find the correct image frame that initiates the sub-sequence.

In other words, Hannuksela merely teaches adding a flag to an initiation image frame in order to identify the initiation image frame such that a decoder may easily and correctly process a sub-sequence at a random point within a sequence of image frames, and as such, the “flag” of Hannuksela merely indicates a first image frame to be processed as the starting point for decoding of a video sequence.

However, Hannuksela contains no disclosure of a flag indicating a position among the image data where values of display order information of the image frames are non-sequential, and as such, Hannuksela clearly fails to teach extracting the flag indicating a position among coded picture data where values of display order information of pictures in a coded stream are non-sequential, as required by the information extraction step of claim 8.

In view of the above, Appellants respectfully submit that Hannuksela clearly fails to disclose, suggest, or otherwise render obvious the above-noted features of claim 8. Therefore, claim 8 is patentable over Hannuksela.

Claims 13 and 15 are directed to a moving picture decoding apparatus and a non-transitory computer readable recording medium, respectively, corresponding to the moving picture decoding method of claim 8. Accordingly, Appellants respectfully submit claims 13 and 15 are patentable over Hannuksela for reasons similar to those discussed above with respect to claim 8.

II. Rejection of Claim 11 under 35 U.S.C. 103(a) as being unpatentable over Hannuksela in view of Teo.

Claim 11 was rejected under 35 U.S.C. 103(a) as being unpatentable over Hannuksela in view of Teo et al. (US 5,621,464, hereafter “Teo”). Appellants respectfully submit that Teo fails to provide disclosure that would obviate the above-mentioned deficiencies of Hannuksela. Accordingly, claim 11 is considered patentable by virtue of their dependency from claim 8. *See In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

III. Rejection of claims 18-22 under 35 U.S.C. 103(a) as being unpatentable over Okada in view of Hannuksela.

Claim 18 recites (A) a detecting step of detecting whether values of display order information for pictures to be included in a generated coded stream are sequential or non-sequential, where being sequential is being incremental by one and being non-sequential is a state other than being incremental by one, and (B) a flag information generation step of generating a flag indicating that the values of the display order information are non-sequential, when said detecting step detects that the values of the display order information for the pictures to be included in the generated coded stream are non-sequential. Appellants respectfully submit that the above-noted features of claim 18 are not disclosed, suggested, or otherwise rendered obvious by any combination of Okada and Hannuksela based on the following.

On page 5 of the Office Action dated June 8, 2011, the Examiner appears to indicate that Okada teaches the “flag” and the flag information generation step of claim 18. In particular, the Examiner relies on the disclosure of Okada at Col. 26, Lines 46-64 to teach these features of claim 18. Appellants respectfully disagree that the cited portion of Okada teaches the “flag” and the flag information generation step of claim 18.

In this regard, Okada is directed to a method of seamlessly linking a plurality of video streams (e.g., video objects or “VOBs”). The disclosure of Col. 26, Lines 46-64 of Okada defines “seamless linking information” used during the reproduction of VOBs in an AV file. In particular, the seamless linking information is information which enables the consecutive reproduction of a plurality of VOBs in an AV file to be performed seamlessly, and the seamless linking information includes a seamless flag showing whether an instant VOB corresponding to instant seamless linking information is reproduced seamlessly following the end of reproduction of a previous VOB positioned immediately before the instant VOB in the AV file.

It is noted that Okada teaches that in order for the seamless flag to indicate that reproduction of the instant VOB is performed seamlessly with the previous VOB, the following relationships between the previous VOB and the instant VOB must be met: (1) both VOBs must use the same display method (e.g., NTSC, PAL, etc.) for the video stream as given in the video attribute information; and (2) both VOBs must use the same encoding method (e.g., AC-3, MPEG, Linear-PCM) for the audio stream as given in the audio attribute information (Col. 26, Line 65 - Col. 27, Line 6).

In other words, the seamless flag taught by the cited portion of Okada merely indicates whether the previous VOB and the instant VOB satisfy a condition for seamless reproduction

that both the VOBs use the same display method and the same encoding method, and as such, the seamless flag taught by Okada is clearly unrelated to indicating a display order of VOBs.

Accordingly, Okada clearly fails to teach generating a flag indicating that values of display order information for pictures to be included in a generated coded stream are non-sequential, as required by the flag information generation step of claim 18.

Additionally, on page 6 of the Office Action dated June 8, 2011, the Examiner acknowledges that Okada fails to teach that “the values of the display order information for the pictures to be included in the generated coded stream are sequential or non-sequential, where being sequential is being incremental by one and being non-sequential is a state other than being incremental by one.” However, the Examiner relies on paragraphs [0093]-[0095] of Hannuksela as teaching that “the values of the display order information for the pictures to be included in the generated coded stream are sequential or non-sequential, where being sequential is being incremental by one and being non-sequential is a state other than being incremental by one.”

Based on the Examiner’s comments in the Office Action, Appellants note that it is unclear as to whether the Examiner believes that the “flag” generated by the flag generating step of claim 18 is taught by Okada, by Hannuksela, or by some combination of Okada and Hannuksela.

Accordingly, in addition to above arguments demonstrating that Okada clearly fails to teach the flag generating step of claim 18, Appellants respectfully submit that the cited portion of Hannuksela fails to provide disclosure that would obviate the above-mentioned deficiencies of Okada (i.e., the cited portion of Hannuksela fails to teach the “flag” and the flag generating step of claim 18).

In this regard, paragraphs [0093]-[0095] of Hannuksela discloses a method of “sliding windowing” for image frame buffering in which the last M image frames that were coded are stored in a buffer to be used as reference images for coding. Hannuksela teaches it is preferable to index the stored M image frames in a specific order in connection with motion compensation. However, Hannuksela acknowledges that the image frame number may include gaps, which a decoder will typically interpret as errors and attempt to reconstruct the image frames interpreted as lost, and as such, Hannuksela requires that an encoder is capable of informing the decoder that the discontinuities in the image numbering are intentional.

In other words, the cited portion of Hannuksela merely teaches discovering the discontinuities in the image numbering and relaying the discontinuities to the decoder. However, Hannuksela fails to teach representing the discontinuities using a different type of information, e.g., representing the discontinuities using a flag indicating a position among the image data where values of display order information of the image frames are non-sequential. As such, Hannuksela clearly fails to teach generating a flag indicating that values of display order information for pictures to be included in a generated coded stream are non-sequential, as required by the flag information generation step of claim 18.

Further, Appellants note that any combination of Okada and Hannuksela would, at best, teach modifying the seamless reproduction method of a video sequence taught by Okada using the method of reproducing a sub-sequence of a video sequence at a random point designated by a user taught by Hannuksela. However, as neither Okada nor Hannuksela provide any disclosure related to generating a flag indicating that values of display order information for pictures to be included in a generated coded stream are non-sequential, Appellants respectfully submit that any combination of Okada and Hannuksela clearly fails to teach the “flag” and the flag information generating step of claim 18.

In view of the above, Appellants respectfully submit that any combination of Okada and Hannuksela fails to disclose, suggest, or otherwise render obvious the above-noted features of claim 18. Accordingly, claim 18 is patentable over any combination of Okada and Hannuksela.

Claims 19 and 22 are considered patentable by virtue of their dependency from claim 18. *See In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Claims 20 and 21 are directed to a moving picture coding apparatus and a non-transitory computer readable recording medium, respectively, corresponding to the moving picture coding method of claim 18. Accordingly, Appellants respectfully submit that claims 20 and 21 are patentable over any combination of Okada and Hannuksela for reasons similar to those discussed above with respect to claim 18.

IV. Conclusion

In view of the foregoing, Appellants respectfully submit that claims 8, 11, 13, 15, and 18-22 are clearly allowable over the prior art of record.

Respectfully submitted,

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CLAIMS APPENDIX - claims on appeal

8. A moving picture decoding method for decoding, on a picture-by-picture basis, a coded stream, wherein the coded stream includes (i) coded picture data for each picture included in the coded stream, (ii) display order information for each picture included in the coded stream, where the display order information for each picture is a picture order count (POC) and has a value indicating the display order of the respective pictures, and (iii) a flag inserted into the coded stream so as to indicate a position among the coded picture data where the values of the display order information of the pictures in the coded stream are sequential or non-sequential, where being sequential is being incremental by one and being non-sequential is a state other than being incremental by one, and wherein the flag is stored in the coded stream or in random access point information in a file system to convey the coded stream, the moving picture decoding method comprising:

an information extraction step of extracting the flag indicating a position among the coded picture data where the values of the display order information are non-sequential; and

a management step of managing a storage memory area for storing a decoded picture based on the flag,

wherein, when the flag is extracted in the information extraction step, a clip including unused pictures is searched, during the management step, for the decoded picture stored in the storage memory area, and a picture whose position is earliest in a display order among the unused pictures is determined as a picture to be removed.

11. The moving picture decoding method according to Claim 8, further comprising an invalid picture storage step of storing an invalid picture in the storage memory area when the values of

the display order information are non-sequential,

wherein, in the management step, whether or not to store an invalid picture in the area is determined based on the flag and the display order information, and

wherein, in the invalid picture storage step, an invalid picture is stored in the storage memory area based on a result of the determination made in the management step.

13. A moving picture decoding apparatus for decoding, on a picture-by-picture basis, a coded stream, wherein the coded stream includes (i) coded picture data for each picture included in the coded stream, (ii) display order information for each picture included in the coded stream, where the display order information for each picture is a picture order count (POC) and has a value indicating the display order of the respective pictures, and (iii) a flag inserted into the coded stream so as to indicate a position among the coded picture data where the values of the display order information of the pictures in the coded stream are sequential or non-sequential, where being sequential is being incremental by one and being non-sequential is a state other than being incremental by one, and wherein the flag is stored in the coded stream or in random access point information in a file system to convey the coded stream, the moving picture decoding apparatus comprising:

an information extraction unit operable to extract the flag indicating a position among the coded picture data where the values of the display order information of the pictures are non-sequential; and

a management unit operable to manage a storage memory area for storing a decoded picture based on the flag,

wherein, when the flag is extracted by the information extraction unit, the management

unit searches a clip including unused pictures for the decoded picture stored in the storage memory area, and determines, as a picture to be removed, a picture whose position is earliest in a display order among the unused pictures.

15. A non-transitory computer readable recording medium encoded with a computer program for decoding, on a picture-by-picture basis, a coded stream, wherein the coded stream includes (i) coded picture data for each picture included in the coded stream, (ii) display order information for each picture included in the coded stream, where the display order information for each picture is a picture order count (POC) and has a value indicating the display order of the respective pictures, and (iii) a flag inserted into the coded stream so as to indicate a position among the coded picture data where the values of the display order information of the pictures in the coded stream are sequential or non-sequential, where being sequential is being incremental by one and being non-sequential is a state other than being incremental by one, wherein the flag is stored in the coded stream or in random access point information in a file system to convey the coded stream, and wherein, when executed, the computer program causes a computer to perform a method comprising:

an information extraction step of extracting the flag indicating a position among the coded picture data where the values of the display order information of the pictures are non-sequential; and

a management step of managing a storage memory area for storing a decoded picture based on the flag,

wherein, when the flag is extracted in the information extraction step, a clip including unused pictures is searched, during the management step, for the decoded picture stored in the

storage memory area, and a picture whose position is earliest in a display order among the unused pictures is determined as a picture to be removed.

18. A moving picture coding method for coding an inputted coded moving picture signal on a picture-by-picture basis and generating a coded stream, wherein the inputted coded moving picture signal includes (i) coded picture data for each picture, and (ii) display order information for each picture, where the display order information for each picture is a picture order count (POC) and has a value indicating the display order of the respective pictures, the moving picture coding method comprising:

a detecting step of detecting whether the values of the display order information for the pictures to be included in the generated coded stream are sequential or non-sequential, where being sequential is being incremental by one and being non-sequential is a state other than being incremental by one;

a flag information generation step of generating a flag indicating that the values of the display order information are non-sequential, when said detecting step detects that the values of the display order information for the pictures to be included in the generated coded stream are non-sequential; and

a coded stream generating step of (1) generating a coded stream including: (i) the coded picture data for each picture to be included in the generated coded stream; and (ii) the flag inserted into the coded stream so as to indicate a position among the coded picture data where the display order of the pictures is non-sequential, or (2) generating a coded stream including: (i) a predetermined coding unit and a further coding unit such that the predetermined coding unit includes a plurality of picture data of respective pictures to be included in the generated coded

stream, including a first intra picture, and such that the further coding unit is located after the predetermined coding unit and includes picture data of a picture whose display order is later than a display order of the first intra picture among the pictures included in the predetermined coding unit; and (ii) the flag inserted into the coded stream so as to indicate a position among the coded picture data where the display order of the pictures is non-sequential,

wherein, in the coded stream generating step, the flag is inserted between two pictures in the generated coded stream, said two pictures being non-sequential in display order.

19. The moving picture coding method according to Claim 18,

wherein, in the coded stream generating step, the coded stream is generated (i) such that a display order of pictures in the predetermined coding unit is sequential, and (ii) such that the display order of the pictures in said predetermined coding unit is located earlier than a display order of pictures in a predetermined coding unit immediately following said predetermined coding unit.

20. A moving picture coding apparatus for coding an inputted coded moving picture signal on a picture-by-picture basis and generating a coded stream, wherein the inputted coded moving picture signal includes (i) coded picture data for each picture, and (ii) display order information for each picture, where the display order information for each picture is a picture order count (POC) and has a value indicating the display order of the respective pictures, the moving picture coding apparatus comprising:

a detecting unit operable to detect whether the values of the display order information for the pictures to be included in the generated coded stream are sequential or non-sequential, where

being sequential is being incremental by one and being non-sequential is a state other than being incremental by one;

a flag information generation unit operable to generate a flag indicating that the values of the display order information are non-sequential when said detecting unit detects that the values of the display order information for the pictures to be included in the generated coded stream are non-sequential; and

a coded stream generating unit operable to (1) generate a coded stream including: (i) the coded picture data for each picture to be included in the generated coded stream; and (ii) the flag inserted into the coded stream so as to indicate a position among the coded picture data where the display order of the pictures is non-sequential, or (2) generating a coded stream including: (i) a predetermined coding unit and a further coding unit such that the predetermined coding unit includes a plurality of picture data of respective pictures to be included in the generated coded stream, including a first intra picture, and such that the further coding unit is located after the predetermined coding unit and includes picture data of a picture whose display order is later than a display order of the first intra picture among the pictures included in the predetermined coding unit; and (ii) the flag inserted into the coded stream so as to indicate a position among the coded picture data where the display order of the pictures is non-sequential,

wherein, in the coded stream generating unit, the flag is inserted between two pictures in the generated coded stream, said two pictures being non-sequential in display order.

21. A non-transitory computer readable recording medium encoded with a computer program for coding an inputted original coded moving picture signal on a picture-by-picture basis and generating a coded stream, wherein the inputted original coded moving picture signal includes (i)

coded picture data for each picture, and (ii) display order information for each picture, where the display order information for each picture is a picture order count (POC) and has a value indicating the display order of the respective pictures, and wherein, when executed, the computer program causes a computer to perform a method comprising:

a detecting step of detecting whether the values of the display order information for the pictures to be included in the generated coded stream are sequential or non-sequential, where being sequential is being incremental by one and being non-sequential is a state other than being incremental by one;

a flag information generation step of generating a flag indicating that the values of the display order information are non-sequential when said detecting step detects that the values of the display order information for the pictures to be included in the generated coded stream are non-sequential; and

a coded stream generating step of (1) generating a coded stream including: (i) the coded picture data for each picture to be included in the generated coded stream; and (ii) the flag inserted into the coded stream so as to indicate a position among the coded picture data where the display order of the pictures is non-sequential, or (2) generating a coded stream including: (i) a predetermined coding unit and a further coding unit such that the predetermined coding unit includes a plurality of picture data of respective pictures to be included in the generated coded stream, including a first intra picture, and such that the further coding unit is located after the predetermined coding unit and includes picture data of a picture whose display order is later than a display order of the first intra picture among the pictures included in the predetermined coding unit; and (ii) the flag inserted into the coded stream so as to indicate a position among the coded picture data where the display order of the pictures is non-sequential,

wherein, in the coded stream generating step, the flag is inserted between two pictures in the generated coded stream, said two pictures being non-sequential in display order.

22. The moving picture coding method according to Claim 18, wherein the flag is stored in supplemental enhancement information (SEI) for storing additional information, the SEI being located between clips in the generated coded stream.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.